

South Jordan City Construction Specifications (Updated 1/22/08)

All construction of public improvements shall conform to APWA 2007 Manual of Standard Specifications. The contractor is responsible to have a copy of these specifications. Items the city uses that vary from APWA are listed below. The order of precedence in case of conflict shall be (1) South Jordan City construction standards (2) APWA (3) The approved Construction drawings.

Any changes from the final approved set of plans must be revised by the design engineer with stamp and signature and submitted to the South Jordan City Engineering Department for approval.

1. CULINARY WATER

A. Pipe type:

The Contractor must use Blue C-900 PVC -DR18 with tracer wire and caution tape (all wire connections need a moisture resistant nut). All trench backfill needs to be between and A-1-a and A-4 soil under the AASHTO Soil Classification System, and pass compaction test's of at least 96% in R.O.W. The pipe needs to be bedded with sand from 6" under the pipe to 18" above top of pipe.

B. Joints:

Cast iron mechanical joints. Megalug following ring or an approved equivalent shall be used on all fittings. Coat nuts and bolts with poly F.M. grease and wrap with 8-millimeter thick poly. Any MJ joints must have the bevel removed from the spicket end before being installed into MJ fitting.

C. Fire Hydrants: Mueller Centurion A-423 or Clow Medallion hydrants only.

The Buryline must be even with top back of curb (TBC). Coat and wrap with poly and grease bolts, do the same to the auxiliary valve. An 18" spool must be placed between hydrant and auxiliary valve. Snake the pipe using mj. X fl. tee to place the fire hydrant in the center of the parkstrip. Turn the hydrant to face the street and plumb in all directions to make sure it is level. Pour large thrust block to insure stability. Make sure thrust block is poured squarely against native soil, i.e. do not make it bullet shaped or angled. Hydrant base and auxiliary valve box must be placed in 4'x 5' by 6" thick concrete pad, level with the sidewalk. Place expansion material between TBC and the sidewalk. All hydrants must have a Gravel Drain to allow proper drainage. Any hydrants installed in a P.U.D. must be mega lugged.

D. Blow Off:

All water line blow offs will require 2 water valve boxes, one for water valve and one for blow off riser. Riser shall be threaded, with a thread protector cap and placed 6" below finish grade.

E. Chlorine Test:

To be checked by the South Jordan City Water Department.
Must notify water department @ (253-5230) and set up a work order 48 hours prior to filling line.
Chlorine flushing discharge for testing needs to be regulated by diffuser or City approved equivalent.

F. Bacteria Test:

Bacteria test will be done by South Jordan City Water Department after the chlorine tests have passed and Contractor has flushed all lines.

G. Pressure Test:

Waterline must be pressure tested prior to tapping services at 200 pounds per square inch (P.S.I.) and must be maintained for 2 hours minimum and witnessed by the South Jordan City Water Department.

H. Service Boxes:

Service Boxes shall be HDPE (preferably white). Use INSTA-TITE Mueller parts.
-18" diameter box for 3/4" IPS (Iron Pipe Size) polyethylene (PE) Pipe service.
-24" diameter box for 1" IPS (Iron Pipe Size) polyethylene (PE) pipe service.

-36" diameter box for 1-1/2" or 2" IPS (Iron Pipe Size) polyethylene (PE) pipe service.
-APWA approved vault is needed for any water meters over 2".
All Polyethylene must be beveled with a manufacturer's beveling tool.
Make sure corp stop is turned on. Laterals must be compacted to 1' behind sidewalk.

I. Mainline:

Mainline must be buried to a minimum of 48" below finish grade; this will keep the pipe from freezing.
Maximum of 5-foot depth for maintenance accessibility.

J. Brass Marker:

To be placed on the front curb, marked with a "W" for water to be stamped and installed by the contractor.

K. Compaction Tests:

All laterals - water, sewer, storm drain etc. will be tested for compaction by the developer and the results given to the Engineering Inspector with a minimum 96% modified proctor.

L. Valves:

All valves must be accessible with a standard 6' valve key, regardless of design or design change, and need to be Mueller or Clow valves or approved equal (approval must be granted in writing before constructing).

M. Water Testing Fee

All flushing of culinary water such as but not limited to new development water system testing shall be assessed a fee and the cost of water used.

N. Commercial Water Meters

If the developer/contractor requests a change in meter size after the construction drawings have been approved by the City, the request must be submitted by licensed design engineer with stamp and signature. The culinary water main tap must be same size as meter size. A new tap off the main is required if tap size is not same as meter size.

O. Manhole lids

Water vault manhole lid specifications: ASTM A 48-93, Class 35B Cast iron construction, machined flat bearing surface, removable lid with pick holes, H-20 highway load rating; lid molded with South Jordan City name and logo imprinted on lid. Provide Model A-1180 manufactured by D&L Foundry & Supply, or acceptable equal.

2. **SECONDARY IRRIGATION**

A. Pipe type

Purple Pipe, C-900 PVC, DR-18 with tracer wire and caution tape (all wire connections need a moisture resistant nut).

B. Mainline:

Must be buried to a minimum of 36" below finish grade. Compaction of 96% using a modified proctor is required. The pipe needs to be bedded in sand from 6" under the pipe to 18" above top of pipe.

C. Location:

Install at front property line in the parkstrip.

D. Blow Off:

All water line blow offs will require 2 water valve boxes, one for water valve and one for blow off riser. Riser shall be threaded, with a thread protector cap and placed 6" below finish grade.

E. Air-Vac

Placed in standard 18 inch meter box with ball valve below air-vac.

F. Brass Marker:

Placed in front curb, marked with an "I" for irrigation are to be stamped and installed by the Contractor.

G. Pressure Test:

35 pounds per square inch (P.S.I.) air tested, must be maintained for a minimum of 2 hours, and witnessed by South Jordan City Water Department. If water is being used, follow hydrostatic testing standards and notify South Jordan City Water Department 48 hours in advance

H. Valves.

All valves must be accessible with a standard 6' valve key, regardless of design or design change, and need to be Mueller type valve.

*** Thrust Blocks (Culinary & Secondary lines)**

Before pouring any thrust blocks, contractor shall give engineering inspector 24 hour prior notice.

3. STORM DRAIN

A. Pipe type

Shall be minimum 18" RCP Class III or HDPE in all Public R-O-W. Private systems can use HDPE pipe.

B. Backfill (RCP):

A City specified material (A-1-a to A-2-7 under AASHTO Soil Classification system) will be used for trench backfill. Place 1" minus gravel 6 inches under pipe and up to spring line (no squeegee or chips). Tamp underneath the haunches to prevent settlement. Compaction of 96% modified proctor is required.

C. Backfill (HDPE):

Backfill in the trench zone shall meet the requirements of AASHTO M145 A-1-a to A-2-7 and be a 2" maximum granular material. Stable and uniform bedding shall be provided for the pipe. The middle of the bedding equal to $1/3^{rd}$ of the pipe O.D. may be loosely placed, while the remainder shall be compacted to a minimum 96% of maximum density (Modified Proctor). A minimum of 4" of $3/4"$ minus gravel shall be provided prior to placement of the pipe, unless an unyielding material (rock cuts) is present in the trench bottom, then a 6" cushion of bedding is recommended. Bedding shall be placed in layers of 8" loose lift thickness and brought up evenly and simultaneously on both sides of the pipe to an elevation not less than one foot (1') above the top of the pipe. Backfill shall be compacted to a minimum compaction level of 96% Density (Modified Proctor)..

D. Boxes:

Grout Boxes inside and out, and strip the forms from inside and outside of the boxes. Clean all dirt, rocks and debris from inside of the boxes. If using a pre-cast box, make sure to form a 6" collar around the outside of box with soil below pipe dug down and formed, and poured with concrete to engineering inspectors discretion. Before pouring concrete collar, contractor shall give engineering inspector 24 hour prior notice.

Inlet boxes must be a standard 48" grates (APWA plan #309). Hooded grates are not allowed due to debris accumulating in the storm drain.

E. Manholes:

Keep the Manhole collar and cover down $1/4"$ minimum and $1/2"$ maximum below finish asphalt grade. This will allow snowplows to pass over the top without hitting or damaging them, in the winter months.

F. Manhole lids:

Storm Drain manhole lid specifications: ASTM A 48-93, Class 35B Cast iron construction, machined flat bearing surface, removable lid with pick holes, H-20 highway load rating; lid molded with South Jordan City name and logo imprinted on lid; Provide Model A-1180 manufactured by D & L Foundry & Supply, or acceptable equal.

G. Storm Drain Inspection

All storm drain lines must be inspected via video or television camera after road base has been placed and before asphalt is laid. HDPE and RCP lines will be re-inspected via video or television camera prior to final bond release. All storm drain infrastructure shall be cleaned by Developer prior to City performing the work. Any damaged pipe sections shall be repaired or replaced before final bond release.

H. Storm Drain Markers

Developments must provide theft-resistant permanent installation of a City-approved storm drain marker at each storm water inlet. The marker is part #STD9131-SSP, a 4" Stainless Steel Green Painted Marker with Custom Tree Logo with 1/4" square hole made by Almetek Industries, Inc. Installation requires Drive Rivet and approved adhesive. The marker shall be installed on the side of the curb approximately midway across the width of the inlet. Lettering on the marker as appropriately follows:

"Only Rain in the Drain" markers installed anywhere storm water discharges to a retention or detention pond.

"No Dumping, Drains to River" markers installed anywhere storm water discharges to the Jordan River.

"No Dumping, Drains to Creek" markers installed anywhere storm water discharges to a Creek in the City.

"No Dumping, Drains to Lake" markers installed anywhere storm water discharges to a lake in the City.

I. UPDES

A UPDES (Utah Pollutant Discharge Elimination System) permit is required for all construction activities 1 acre or more.

J. Utilities

All utilities including gas, phone, and cable in roadways must be installed prior to pavement construction.

4. CONCRETE

A. Curb:

High back Curb will only be allowed! If slip forming, an expansion joint is required every 300 feet and at point of curvature (PC) and point of tangency (PT). If hand forming, expansion is required at PC and PT, and every 100'. Road base under the curb and gutter must be at least 8" thick and compacted to 96% of maximum density. A 6.5 bag mix will be used along with a coating of white pigment curing compound. A 7.5 bag mix must be used (at engineering inspectors discretion), when nighttime temperatures start to approach freezing. At the handicap ramp where it butts up against the road, there will be a 6' portion of no lip and a 6' wing from the no lip to match the high back curb elevation. There will be no ponding allowed. Before placement of asphalt, a flow test must be performed at engineering inspectors discretion. Sections that do not flow, or where ponding occurs, will be removed and replaced.

On all Construction sites contractor must notify engineering inspector 24 hours prior to pouring any concrete and verify proper location.

B. Sidewalk

Compact subgrade to 96% of maximum density. 6" of base, compacted to 96% of maximum density is required. Concrete thickness will be 5". Sidewalk will be scored to depth of between 1/2" to 3/4" deep every 6' for a 6' wide sidewalk, or score lines shall be placed at intervals equal to the width of the sidewalk. An expansion joint will be placed in the sidewalk at 40-foot intervals. If sidewalk borders curb it must comply with handicap standards of 1 foot to 12 feet maximum fall on all approaches and handicap accesses. All handicap ramps require an ADA approved truncated dome insert. These shall be 4' x 2' and dark grey in color.

5. STREETS

A. Collector Streets:

The section for collector streets is as follows:

16" of road base (from TBC to TBC)

5" of 3/4" size asphalt mix (AC 20).

The above section may be modified if a professional engineer using the ASSHTO 1993 Guide for Pavement Design Structures (actual CBR values must be determined) calculates that a different section is adequate. In no case shall the section of a collector street be less than 4" of asphalt over 8" of roadbase.

A deflection test must be performed on the subgrade before any base material is placed. Any soft or pumping areas will be removed and replaced with bank run material at engineering inspectors' judgment. Compaction tests are required on finish base and asphalt grades. Finish base and asphalt grades, must have an average density of 96% maximum density using modified proctor on roadbase and Marshall method on asphalt. Ambient temperature must be 45° F and rising in order to place asphalt. Asphalt placement between October 1st and April 1st must have City Engineers approval.

B. INTERIOR STREETS:

The section for interior streets is as follows, unless a soils report using ASSHTO 1993 Pavement Design indicates a different section is adequate:

14" of road base

3.5" of 1/2" size asphalt mix (AC 20).

The above section may be modified if a professional engineer using the ASSHTO 1993 Guide for Pavement Design Structures (actual CBR values must be determined) calculates that a different section is adequate. However, in no case shall the section of an interior street be less than 3" of asphalt over 8" of roadbase.

Testing procedures for interior streets are the same as collector streets.

C. PROOF ROLL:

Proof roll must be performed by Developer/Contractor's Engineer and witness by Developer's licensed Geotechnical Engineering consultant and SJC Inspector. Developer's Geotechnical Engineer must analyze and recommend stabilization of subgrade.

D. ASPHALT PAVEMENT TOLERANCES

Reference Table 4 – Roughness Tolerance of Section 3.6 of Asphalt Paving 32 12 16 of the APWA 2007 Manual of Standard Specifications.

6 PUNCH LIST ITEMS (STREETS DIVISION)

1. Sidewalks and Curb & Gutter shall be replaced if there is more than a ½ inch settlement or heave in a 4 inch section.
2. Sections with Concrete Spalling shall be replaced. Sections shall be replaced from cold joint to cold joint
3. Sections with Concrete Chips more than ½ inch deep and 3 inches across shall be replaced as follows:
 - a. 0 – ½ inch deep and 0 – 3 inches across use seca flex 123
 - b. 3 or more chips shall be replaced. The entire section from cold joint to cold joint shall be replaced.
4. Cracks in concrete other than brake lines shall be replaced.
5. Trip Hazards:
 - a. More than ¼ inch vertical hazard shall be replaced.
 - b. ¼ inch expansion joint vertical hazard shall be cut down.
6. Wheel Chair Ramps
 - a. Brake lines shall be no more than 4 feet apart (lateral and longitude).

- b. Truncated domes must be installed to meet ADA and/or South Jordan City Standard Specifications.
 - c. The maximum gap between the ramp and sidewalk and curb & gutter shall be no larger than ½ inch.
7. Concrete rings around manholes and valves shall be ½ inch below the final asphalt elevation.
8. All sidewalks and Curb & Gutter shall be completely backfilled to within 3 inches of the Top Back of Curb (TBC) and within 3 inches of the top of sidewalk.
9. Concrete and asphalt must make a complete marriage per APWA specifications.
10. Storm Drains:
- a. All debris, including framing, shall be cleaned out in storm drains and manholes.
 - b. All grouping of storm drains and manholes shall make a complete marriage.
 - c. All lids and grates shall be easily removed.
11. Asphalt:
- a. Marriages of asphalt shall be vertical, with complete marriage and with no gaps. Marriage will be cracked sealed and not be more than 1/2 inch higher than existing asphalt and/or concrete.
12. Pot Holes:
- a. Any potholes and cracks shall be cut out to the satisfaction and discretion of the Operations Director and City Engineer or their designee and patched and crack sealed.
13. Any damage caused by any machinery or equipment shall be repaired or replaced to the satisfaction of the Operations Director and City Engineer or their designee.

7. **STREET SIGNS**

The City of South Jordan Engineering Department approves placement and design of all signs. Developer is responsible for Installation of his own signs. 3M Diamond Grade sheeting is required. Blades to be 9" x 36" with 6" upper case lettering for a name, and 3" lettering for coordinate.

8. **PARKSTRIPS (Collector Streets Only)**

The City of South Jordan Parks Department approves installation and acceptance of all parkstrips. Before installation, the Developer/Contractor must submit irrigation plans and parkstrip improvements to the city associate engineer. A 90% inspection will be performed when all work is completed, and a Final inspection will be required when the 2-year maintenance/guarantee period is complete. 90% and 100% Inspections for punch lists from October 15 – April 15 may be dependant upon weather.

9. **FENCING**

Collector street fencing must meet the current city ordinances and if fence exceeds 6' developer/contractor shall obtain SJC building permit. If wrought iron is used, spacing of steel pickets must be 4" on center. Cross section must be shown on engineering plans.

10. **DUST CONTROL/ CLEAN PAVEMENT**

Water truck must be on site if necessary, to prevent excess dust from blowing. It is the developer's responsibility to control any dust that has been introduced from grubbing/construction. Do not grub an area, if you cannot control the dust.

Keep excessive mud/ dirt off the roads. Contractor is responsible for cleaning any Public Roads, which have become dirty from vehicles, entering and leaving construction site.

11. **CLEAR ZONE**

A 30' snow zone must be allowed for at the end of all cul-de-sacs. No approaches, mailboxes, fire hydrants or transformers will be allowed. Streetlights can be placed in the clear zone.

12. **PROPERTY MARKERS**

Before any excavation is started for building foundations, all property corners must be surveyed and marked. For commercial developments, contact City Engineering Department prior to any construction of onsite curbing and building foundations to verify setback compliance.

13. **BOND RELEASES**

All bond release requests must be submitted in writing to the City of South Jordan Engineering Department. Upon completion of each major improvement category (i.e. Water system, Road Work, Storm Drainage, etc.) the Developer may request the City to release 90% of the money from the Account. A 2-year warranty period will start once all improvements and pre-final punch lists have been completed. At the end of the warranty period there will be a final punch list that will have to be completed before the remaining 10% is released and the city accepts ownership of the improvements.

14. **CONSTRUCTION SCHEDULE**

The Contractor must provide the City of South Jordan Public Services Department with a Construction Schedule. This schedule will help the Engineering Inspectors inspect the various Construction phases, and to help insure that all requirements are being met. A traffic control plan must be submitted for approval before any work begins.

15. **WORK HOURS**

Contractor shall work South Jordan City's regular working hours of Monday through Friday 7:00 am to 4:00 pm. If Contractor permits overtime work or work on a Saturday, Sunday or any legal holiday, Contractor shall receive prior approval by City Engineer and pay The City of South Jordan Overtime Fees.

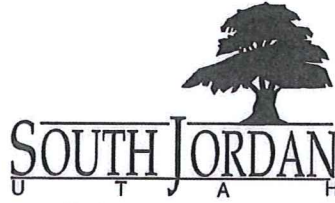
Fees: \$57.66 an hour for Inspector

\$50.00 a day for truck

Fees shall be paid on the Thursday prior to Saturday, Sunday or legal holiday requested.

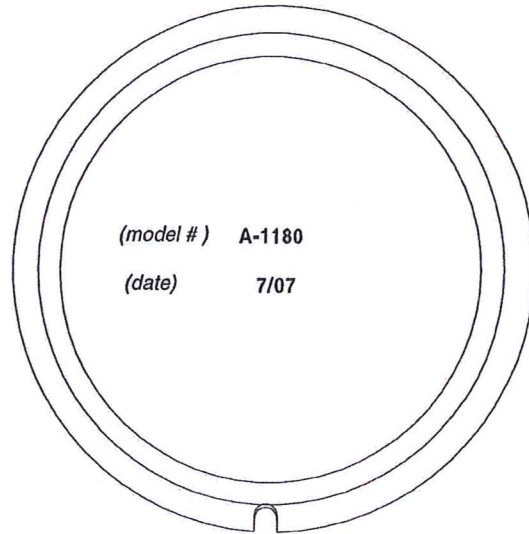
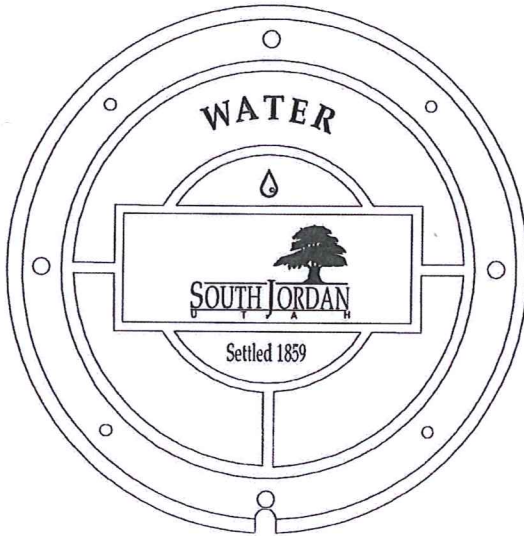
Minimum 4-hours / Maximum 10-hours

A-1180



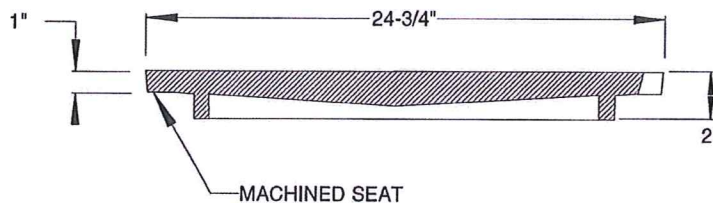
Water Manhole Cover

(Platen-bottom cover)



(model #) A-1180

(date) 7/07



COVER EXCEEDS A COMPRESSION TEST OF UP TO 50,000 LBS.

CAST IRON conforms to
ASTM A-48-93 Class 35B
Meets H-20 Wheel Loading

D&L model No. A-1180

Made in Moses Lake, WA. USA

D&L Foundry & Supply

CA Sales: (707) 557-4525 Fax: (707) 557-4655
UT Sales: (801) 785-5015 Fax: (801) 785-0835
WA Sales: (509) 765-7952 Fax: (509) 765-8124

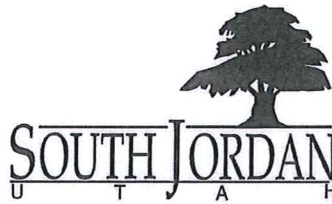
Designation:
A-1180

Date:
July 2007

Prepared by: Jesse Walter

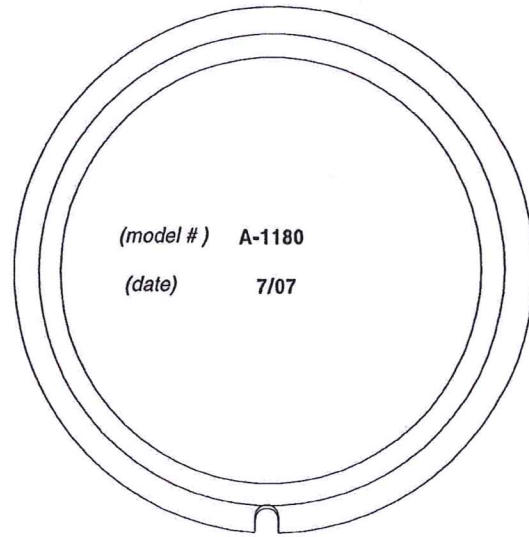
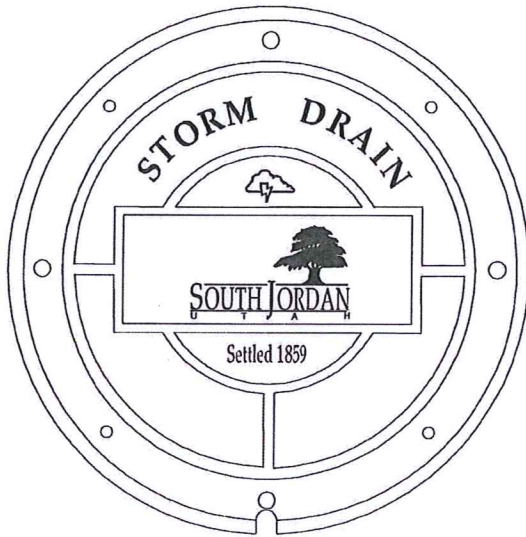
D&L Foundry & Supply Inc. (not to scale)

A-1180



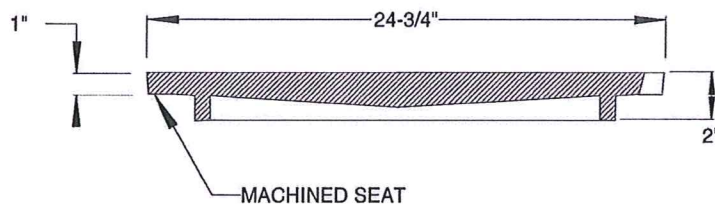
Storm Drain Manhole Cover

(Platen-bottom cover)



(model #) A-1180

(date) 7/07



COVER EXCEEDS A COMPRESSION TEST OF UP TO 50,000 LBS.

CAST IRON conforms to
ASTM A-48-93 Class 35B
Meets H-20 Wheel Loading

D&L model No. A-1180

D&L Foundry & Supply

Designation:
A-1180

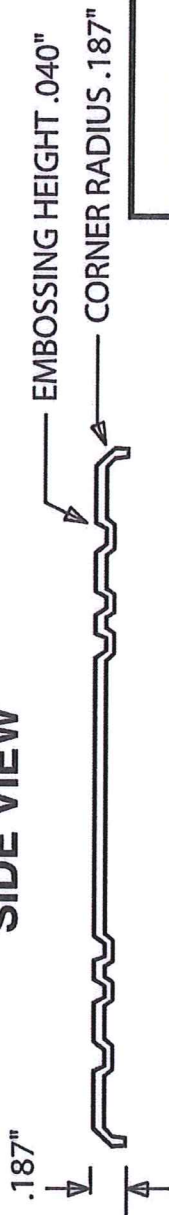
Date:
July 2007

Prepared by: Jesse Walker
D&L Foundry & Supply Inc. (not to scale)

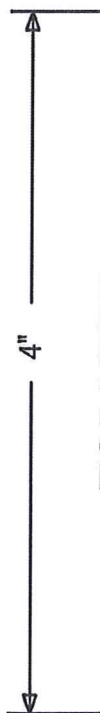
CA Sales: (707) 557-4525 Fax: (707) 557-4655
UT Sales: (801) 785-5015 Fax: (801) 785-0835
WA Sales: (509) 765-7952 Fax: (509) 765-8124



SIDE VIEW



TOP VIEW



FINISH		
UV BAKED ENAMEL	-	1-2 COLOR OPTION
NATURAL FINISH	SAND BLASTED FRONT & REAR FOR PAINT & ADHESIVE BONDING	
MATERIAL	THICKNESS	WEIGHT
304 ANNEALED STAINLESS STEEL	.062"	.218 LBS.
BRASS	.062"	.250 LBS.
ALUMINUM	.062"	.082 LBS.
ANODIZED ALUMINUM	.062"	.082 LBS.
LEGIBILITY WARRANTY		
STAINLESS STEEL & BRASS	-30 YEARS	
ALUMINUM & ANODIZED	-15 YEARS	
U.S. & FOREIGN PATENTS PENDING		
OPTIONS		
SQUARE HOLE: 1/4" X 1/4"		
SERIAL NOS.: .250" HIGH, MAX. 6 DIGITS		
ENGRAVING COPY: 3 LINES, 30 CHARACTERS		

ART APPROVAL FORM

This is our interpretation of your artwork requirements. Review for accuracy and note any changes you wish to make before signing this approval form.
NOTE: This art approval request form is required to begin the manufacturing process.

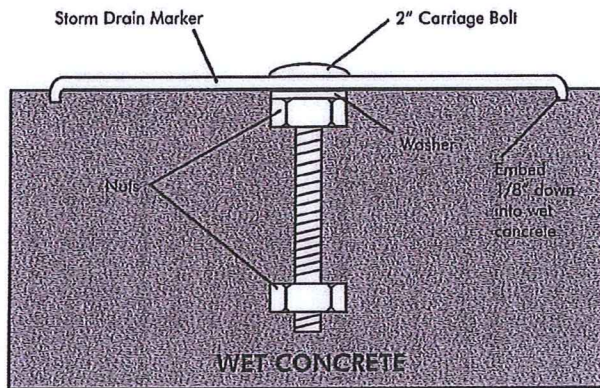
Approved as is	Submit new art with changes	Date
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Drawn by:	DATE	REV. #	2	DATE	11/16/07	REV. #	

Theft-Resistant Permanent Installations for Storm Drain Markers 30-Year Warranty*

For Stainless, Brass, Aluminum and Anodized Aluminum

WET CONCRETE INSTALLATION

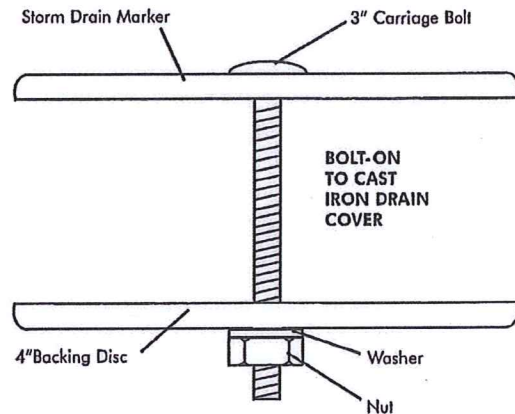


HARDWARE:

CB-2" Set:

- 1- 2" 1/4"-20 SS Carriage Bolt
- 1- 5/16"x5/8" O.D. x .062" thick SS Washer
- 2- 1/4"-20 UNC SS Nuts

BOLT-ON INSTALLATION



HARDWARE:

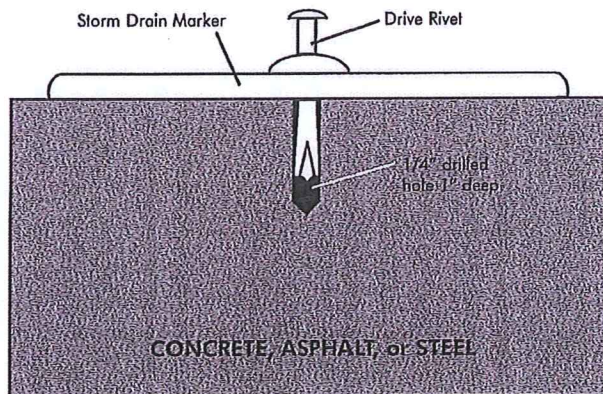
CB-3" Set:

- 1- 4" SS Backing Disc
- 1- 3" x 1/4"-20 SS Carriage Bolt
- 1- 5/16" x 5/8" O.D. x .062" thick SS Washer
- 1- 1/4"-20 UNC SS Nut

NOTE: All 4" Discs have square hole for carriage bolt insertion

* After the appropriate installation, if the Marker is stolen or missing, Almetek will replace the Marker and hardware at no cost.

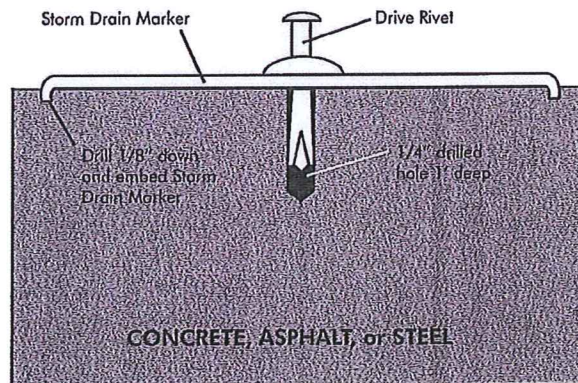
SURFACE MOUNT INSTALLATION



HARDWARE:

- 1-DR250-1/4" x 3/4" Drive Rivet-STD
- 1-DB250-1/4" Carbide Drill Bit
- Hammer (not supplied)
- optional: adhesive

SUB-SURFACE MOUNT INSTALLATION PATENT PENDING



HARDWARE:

- 1-DR250-1/4" x 3/4" Drive Rivet- STD
- 1-CDB-4 - Carbide Drill Bit, Anchor, Pilot (not shown)
- Hammer (not supplied)
- optional: adhesive



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www.almetek.com • email: csr@almetek.com